

ABSTRACT

**NAME OF INSTITUTE:** De La Salle Univeristy - Dasmariñas

**ADDRESS:** Dasmariñas, Cavite 4115

**TITLE:** Characterization and Bio-assay of the Antibiotic Effect of Actinomy-  
cetes against *Candida albicans*, *Escherichia coli* and *Staphylococcus aureus*.

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**RESEARCH COST:** P 1,137.00

**DATE:** Started 31 of July 1997  
Completed 29 of August 1997

**OBJECTIVES OF THE STUDY:**

**A. General**

To characterize and subject to bio-assay antibiotic-producing Actinomy-  
cetes isolated from three different soil samples; forest, garden, ricefield.

**B. Specific**

To determine what Actinomycetes genera or genus will be isolated from  
the three soil samples. To determine what Actinomycetes genus will exhibit great-  
est antibiotic effect.

**SCOPE & DELIMITATION OF THE STUDY**

Actinomycetes isolated from soil samples was characterized and identified.  
The isolated Actinomycetes was subjected to bio-assay to determine the antago-

nistic ability of each isolated genus against common human pathogens.

The study was limited to the isolation, cultivation, identification and bio-assay of Actinomycetes found in forest, garden, and ricefield soil. Bio-assay was performed through a susceptibility test using a combination of Dual Culture Microbial Lawn Technique and Agar Well Technique. The selected pathogens were *Candida albicans*, *Escherichia coli* and *Staphylococcus aureus*.

#### METHODOLOGY

This study was an investigative research on Actinomycetes. After extraction from soil samples, unwanted soil microorganisms were eliminated. Isolated Actinomycetes was then characterized and subjected to bio-assay through susceptibility tests with human pathogens. After incubation, zones of inhibitions were recorded as indicating antagonistic ability. Actinomycetes genus with the highest average of antagonistic ability was determined as exhibiting the greatest antibiotic effect.

#### FINDINGS

The different Actinomycetes genera isolated from the three soil samples were *Micromonospora*, *Mycobacterium*, *Streptomyces*, *Streptosporangium*, and *Nocardia*. After characterization *Micromonospora* was found to inhabit all 3 soil samples. Upon comparing the zones of inhibitions, the isolate *Micromonospora* 11R7 exhibited the widest antagonistic effect against the pathogens.

## CONCLUSIONS

The proponents of the findings conclude that the isolated Actinomycetes genus flourishing in the three soil samples was *Micromonospora*. The various zones of inhibitions indicated that the isolated Actinomycetes genus exhibiting widest antagonistic ability was *Micromonospora*.

## RECOMMENDATIONS

The researchers suggest that various test organisms be studied with different bio-assay techniques, other soil types should be employed using randomized soil sampling, target organism and test pathogens be inoculated into animal subjects, bio-active components of the target organisms be analyzed, factors attributed to different antagonistic ability should be researched and that the required concentration of the test organisms for effectivity of antibiotics be determined.